

EXHIBIT 5

Superseded by a later version of this document.

Data-Over-Cable Service Interface Specifications DOCSIS 3.0

MAC and Upper Layer Protocols Interface Specification

CM-SP-MULPIv3.0-I18-120329

Issued

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Key to Document Status Codes

Work in Progress	An incomplete document, designed to guide discussion and generate feedback that may include several alternative requirements for consideration.
Draft	A document in specification format considered largely complete, but lacking review by Members and vendors. Drafts are susceptible to substantial change during the review process.
Issued	A stable document, which has undergone rigorous member and vendor review and is suitable for product design and development, cross-vendor interoperability, and for certification testing.
Closed	A static document, reviewed, tested, validated, and closed to further engineering change requests to the specification through CableLabs.

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3 TERMS AND DEFINITIONS⁹

This specification uses the following terms:

Active Codes	The set of spreading codes which carry information in an S-CDMA upstream. The complementary set, the unused codes, are idle and are not transmitted. Reducing the number of active codes below the maximum value of 128 may provide advantages including more robust operation in the presence of colored noise.
Address Resolution Protocol	A protocol of the IETF for converting network addresses to 48-bit Ethernet addresses.
Advanced Time Division Multiple Access	DOCSIS 3.0 TDMA mode (as distinguished from DOCSIS 1.x TDMA).
Allocation	A group of contiguous mini-slots in a MAP which constitute a single transmit opportunity.
American National Standards Institute	A U.S. standards body.
Bandwidth Allocation Map	The MAC Management Message that the CMTS uses to allocate transmission opportunities to CMs.
BITS Encoding	An octet string using a BITS encoding represents a zero-indexed linear array of 8*N bits, with the most significant bit of each byte representing the lowest-indexed bit. Bit positions increase from left to right. For example, bit position 0 is the most significant bit of the most significant (leftmost) byte, encoded as hex 0x80. Unspecified bit positions are assumed as zero. Unimplemented bit positions are ignored.
Bonded Channel Set	An identified set of upstream or downstream channels among which a stream of packets is distributed.
Bonding Group	A list of channels providing a means to identify the specific channels bonded together.
Border Gateway Protocol	An inter-autonomous system routing protocol.
Bridged Network	A set of IEEE 802 LANs interconnected by IEEE 802.1D MAC bridges.
Bridging CMTS	A CMTS that makes traffic forwarding decisions between its Network System Interfaces and MAC Domain Interfaces based upon the Layer 2 Ethernet MAC address of a data frame.
Burst	A single continuous RF signal from the upstream transmitter, from transmitter on to transmitter off.
Byte	A contiguous sequence of eight bits. An octet.
Cable Modem	A modulator-demodulator at subscriber locations intended for use in conveying data communications on a cable television system.
Cable Modem Service Group	In the HFC plant topology, the complete set of downstream and upstream channels within a single CMTS that a single Cable Modem could potentially receive or transmit on. In most HFC deployments, a CM-SG corresponds to a single Fiber Node. Usually, a CM-SG serves multiple CMs.

⁹ Revised per MULPIv3.0-N-06.0297-1, MULPIv3.0-N-06.0313-5 by GO on 10/13/06 and 11/21/06, per MULPIv3.0-N-0489-2, on 7/11/07, MULPIv3.0-N-07.0492-4 on 7/12/07, MULPIv3.0-N-07.0544-2 on 10/31/07, and MULPIv3.0-N-08.0622-3 on 4/9/08 by KN. Revised per MULPIv3.0-N-10.0973-2 on 1/17/2011 by JB.